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IS 7809-3-3 (1981): Pressure sensitive adhesive tapes for electrical purposes, Part 3: Specifications for individual materials, Section 3: Polyester film tapes (PETP) with non-thermosetting adhesive [ETD 2: Solid Electrical Insulating Materials and Insulation Systems]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR PRESSURE SENSITIVE ADHESIVE TAPES FOR ELECTRICAL PURPOSES

PART III SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 3 Polyster Film Tapes (PETP) with Non-thermosetting Adhesive

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Section 3 Polyester Film Tapes (PETP) with Non-thermosetting Adhesive

Solid Electrical Insulating Materials Sectional Committee, ETDC 63

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Indian Standard

SPECIFICATION FOR PRESSURE SENSITIVE ADHESIVE TAPES FOR ELECTRICAL PURPOSES

PART III SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 3 Polyester Film Tapes (PETP) with Non-thermosetting Adhesive

0. F O R E W O R D

0.1 This Indian Standard (Part III/Sec 3) was adopted by the Indian Standards Institution on 17 July 1981, after the draft finalized by the Solid Electrical Insulating Materials Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 A series of standards is being brought out on pressure sensitive adhesive tapes for electrical purposes. This series covers the following in various parts:

- a) General requirements,
- b) Methods of test, and
- c) Specifications for individual materials.

0.3 This standard (Part III/Sec 3) covers requirements for polyester film tapes (PETP) with non-thermosetting adhesive

0.4 This standard should be read in conjunction with IS : 7809 (Part I)-1975* and IS : 7809 (Part II)-1977†.

0.5 In the preparation of this standard, assistance has been derived from IEC Doc : 15C (C.0) 106 'Draft specification for pressure sensitive adhesive tapes for electrical purposes, Part III Sheet 3 polyester film tapes (PETP) with non-thermosetting adhesives', issued by the International Electrotechnical Commission.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated,

*Specification for pressure sensitive adhesive tapes for electrical purposes: Part I General requirements.

†Specification for pressure sensitive adhesive tapes for electrical purposes: Part II Methods of test.

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expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part III/Sec 3) contains the requirements for pressure sensitive adhesive tapes made of polyester film with non-thermosetting adhesive.

NOTE — The non-thermosetting adhesives used for these tapes are normally based on natural or synthetic rubber or synthetic resin.

2. DESIGNATION

2.1 Designation of the product is F-PETP/130/Tp. in accordance with 3 of IS : 7809 (Part I)-1975†.

3. GENERAL REQUIREMENTS

3.1 General — The material shall conform to the requirements stated in IS : 7809 (Part I)-1975†.

3.2 Width — The measured width shall be in accordance with 6.2 of IS : 7809 (Part I)-1975†.

3.3 Length — The measured length shall be in accordance with 6.3 of IS : 7809 (Part I)-1975†.

3.4 Thickness — The thickness shall be measured in accordance with 3 of IS : 7809 (Part II)-1977‡. The preferred thickness shall be in the range 0.02 mm to 0.1 mm. The tolerance on thickness shall be 15 percent or 0.01 mm, whichever is the greater.

4. PERFORMANCE REQUIREMENTS

4.1 When tested according to the relevant method described in IS : 7809 (Part II)-1977‡, the material shall conform to the requirements given in Table 1.

NOTE — It should be understood that the values given are minimum values of the central value [see 2.12 of IS : 9335 (Part I)-1979§] obtained as a test result.

*Rules for rounding off numerical values (revised).

†Specification for pressure sensitive adhesive tapes for electrical purposes: Part I General requirements.

‡Specification for pressure sensitive adhesive tapes for electrical purposes: Part II Methods of test.

§Specification for cellulosic papers for electrical purposes: Part I Definitions and general requirements.

TABLE 1 SCHEDULE OF CHARACTERISTICS

(Clause 4.1)

SL NO.	PROPERTY	TEST METHOD CLAUSE	UNIT	REQUIREMENT
a)	Electrolytic corrosion after 24h at $27 \pm 2^\circ\text{C}$ and 93 ± 2 percent relative humidity +	4 of IS : 7809 (Part II)-1977*	Ohm	1×10^{11} minimum central value
b)	Thermal endurance	7 of IS : 7809 (Part II)-1977*		Temperature index not less than 130 [(see clause 5.1 of IS: 7809 (Part III/ Sec 2-1981)]
c)	Tensile strength	9 of IS : 7809 (Part II)-1977*	N/10mm	600 min. per mm thickness
d)	Elongation at break	9 of IS : 7809 (Part II)-1977*	percent	75 min
e)	Adhesion to steel	10.3.2 of IS : 7809 (Part II)-1977*	N/10mm	2 minimum for thickness up to 0.02 mm 3 minimum for thickness over 0.02 mm
f)	Adhesion to backing	10.3.3 of IS : 7809 (Part II)-1977*	N/10mm	2 minimum central value
g)	Electrical strength			
1)	At room temperature	12 of IS : 7809 (Part II)-1977*	kV/mm	70 minimum
2)	after humid conditioning 24 h at $27 \pm 2^\circ\text{C}$ and 93 ± 2 percent relative humidity	13 of IS : 7809 (Part II)-1977*	kV/mm	70 minimum

+ For materials complying with the requirement, limiting values for the wire insulation strength method or the visual method may be added.

*Specification for pressure sensitive adhesive tapes for electrical purposes: Part II Methods of tests.

5. THERMAL ENDURANCE

5.1 When required by the purchaser, the supplier shall provide evidence that when tested in accordance of IS : 7809 (Part II)-1977* the tape has a temperature index [see 11.1.1 of IS : 8504 (Part I)-1977†] of not less than 130. The exposure temperatures shall be 150°C , 160°C and 180°C .

*Specification for pressure sensitive adhesive tapes for electrical purposes : Part II Methods of tests.

†Guide for determination of thermal endurance properties of electrical insulating materials: Part I Temperature indices and thermal endurance profiles.

5.2 The endpoint criterion used for breakdown voltage is 35 kV/mm of initial thickness. The electrode for testing electric strength shall be a metal foil.

NOTE 1 — The results on a particular tape continue to be valid until a change is made in the composition or method of manufacturing.

NOTE 2 — Consideration is being given to thermal endurance tests using mechanical properties to determine life.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Definition</i>
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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